



A new *Calliostoma* species (Gastropoda: Calliostomatidae) from Angola

Una nueva especie de *Calliostoma* (Gastropoda: Calliostomatidae) de Angola

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ABSTRACT

A small trochoidean species from southern Angola is described as *Calliostoma (Fautor) fernandesi* sp. nov. No comparable species is known from the West African Province, and only one comparable species is known from the Caribbean. The subgeneric placement in *Fautor* Iredale, 1924 is based on recent revisions made about similar species from the Southwest Pacific, to which the new Angolan species seems to be closely related.

RESUMEN

Se describe como *Calliostoma (Fautor) fernandesi* sp. nov. una pequeña especie de trocoideo del sur de Angola. No se conoce ninguna especie comparable en la provincia Oeste-Africana y tan solo una especie comparable es conocida en el Caribe. La asignación subgenérica en *Fautor* Iredale, 1924 se apoya en revisiones recientes de especies similares del Pacífico suroeste, con las que la nueva especie angoleña parece estar estrechamente relacionada.

KEY WORDS: Calliostomatidae, *Calliostoma*, *Fautor*, Angola, West Africa, Southwest Pacific.

PALABRAS CLAVE: Calliostomatidae, *Calliostoma*, *Fautor*, Angola, África occidental, Pacífico suroeste.

INTRODUCTION

The specific diversity of trochoideans living at the infralittoral and circalittoral levels of the West African Province is known to be very poor, compared to other intertropical provinces as well as to the neighbouring temperate Lusitanian Province which shelters, despite its smaller area, a noticeably higher number of trochoidean species.

The scarcity of trochoidean species off West Africa is noted for all the trochoidean groups, including groups well-represented within the Lusitanian Province such as *Calliostoma*, *Gibbula* or

Jujubinus. A few Lusitanian trochoideans reach the northern tip of the West African Province, principally the Peninsula of Cap Vert-Senegal and the Cape Verde Archipelago, whereas the rest of the province almost devoid of trochoidean species.

As a confirmation of this situation, the description of new trochoidean species from off West Africa remains an uncommon occurrence, despite important progress in the inventory and study of the molluscan fauna of this marine province for the last 25 years. In 1991,

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GOFAS described as new *Jujubinus fulgor* from off Angola (more recently collected also off Ghana and off São Tomé); in 1993, RUBIO AND SALAZAR described as new *Calliostoma hernandesi* from off Guinea Conakry (said to range also off Senegal and off Gabon); in 2001, ROLÁN AND TEMPLADO described as new *Gibbula verdensis*, *G. sementis* and *G. clandestina*, together with *Jujubinus rubioi*, all from the Cape Verde Archipelago.

A small lot of shells of a distinctive, tiny calliostomatid species from southern Angola (Santa Maria Bay, southern coast of the Benguela Province), collected by Francisco Fernandes in March 1983, has been studied in the important collection of West African marine mol-

lusca constituted by Peter Ryall over the last 25 years. Characterized by a conical shell with tan ground and few strong cords bearing big rounded nodules, this calliostomatid species is not recorded in the literature and it was not observed in other public or private collections, including samplings made in Angola by Serge Gofas (MNHN general collection) and Emilio Rólan (private collection).

This calliostomatid species is described hereunder as new. On the basis of the recent works of MARSHALL (1995) and VILVENS (2005) about *Calliostoma* species from deep water of the Southwest Pacific, our new species is included in the subgenus *Fautor* Iredale, 1924.

RESULTS

Superfamily TROCHOIDEA Rafinesque, 1815
Family CALLIOSTOMATIDAE Thiele, 1924
Subfamily CALLIOSTOMATINAE Thiele, 1924
Tribe Calliostomatini Thiele, 1924
Genus *Calliostoma* Swainson, 1840

Type species: *Trochus conulus* Linnaeus, 1758 (by s.d. Herrmannsen, 1846). Recent, Mediterranean Sea.

Subgenus *Fautor* Iredale, 1924

Type-species: *Ziziphinus comptus* A. Adams, 1855 (by o.d.). Recent, southern Australia.

Calliostoma (Fautor) fernandesi sp. nov. (Figs. 2-10)

Type material: Holotype Muséum national d'Histoire naturelle (MNHN-Paris): adult specimen (6.00 mm) (Figs. 2-6), paratype n°1 F. Boyer collection: adult specimen (6.10 mm) (Figs. 7-9), paratypes n°2-7 P. Ryall collection: 1 adult specimen (7.14 mm) and 5 juvenile specimens. All from the type locality.

Type locality: Santa Maria Bay, Benguela Province, southern Angola, in 1-2 m.

Etymology: From Francisco Fernandes, keen collector and student from Luanda who highly contributed to the increase of knowledge about the molluscan fauna of Angola in the late XXth century.

Description: Holotype (Figs. 2-6). Shell small for the genus (6.00 x 4.85 mm), imperforate, conical, spire rather high, height about 1.2x width, about 3.2x higher than aperture, spire angle about 40°. Protoconch bulging, looking as a double-bump, of about 1.25 whorls. Teleoconch of 7 whorls, apex stepped, spire whorls

flat sided, last whorl flaring, its subsutural zone slightly depressed, its upper side less oblique than the sides of the spire whorls, its peripheral zone rounded. Four thick spiral cords on each whorl, each spiral cord covered by strong subequal granules, size of the rounded granules increasing from the posterior to the anterior part of

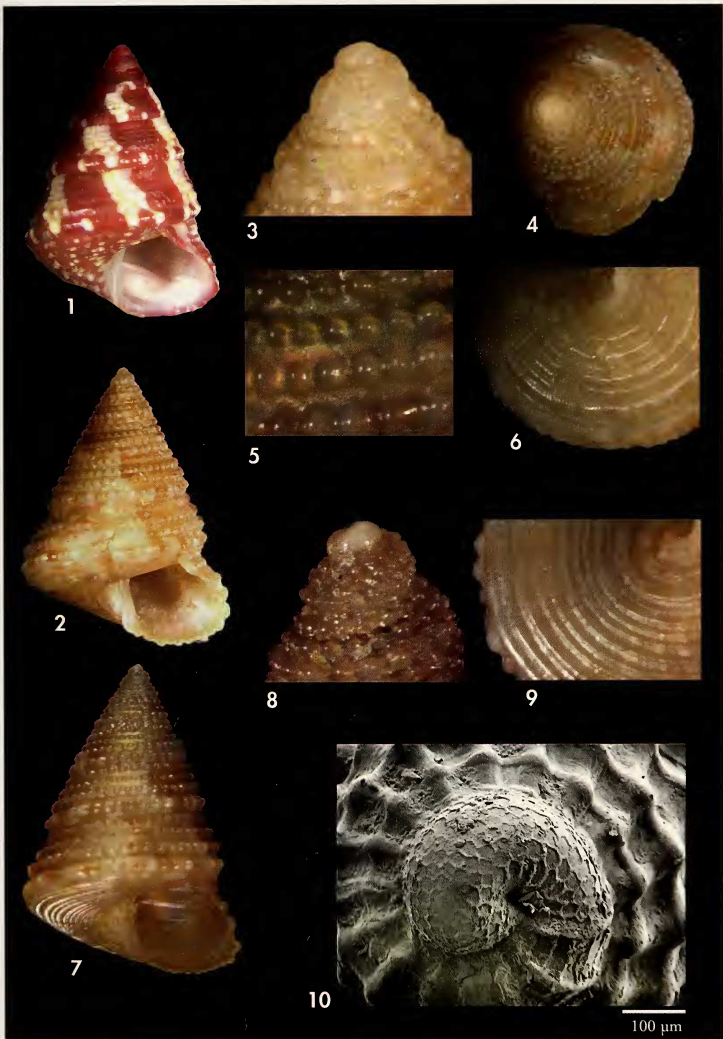


Figure 1. *Jujubinus fulgor* Gofas, 1991, Santa Maria Bay, Angola, 6.40 mm, FBC. Figures 2-10. *Calliostoma (Fautor) fernandesi* sp. nov., Santa Maria Bay, Angola. 2-6: holotype MNHN, 6.00 mm; 7-9: paratype n°1, 6.10 mm, F. Boyer collection; 10: protoconch of paratype n°1, width: 300 µm.

Figura 1. Jujubinus fulgor Gofas, 1991, Santa Maria Bay, Angola, 6.40 mm, FBC. *Figuras 2-10. Calliostoma (Fautor) fernandesi* sp. nov., Santa Maria Bay, Angola. 2-6: holotype MNHN, 6.00 mm; 7-9: paratype n°1, 6.10 mm, F. Boyer collection; 10: protoconch of paratype n°1, width: 300 µm.

the whorl, granulate spiral cords separated by deep, wide intervals. Eight smooth spiral cords on the base.

Aperture subquadrate, palatal edge elliptic, parietal edge straight, subhorizontal, columellar edge subvertical, slightly sinuous, base weakly convex. Ground colour light tan, decorated with light honey-brown mottling.

Operculum small, subcircular, smooth, yellowish.

Animal and radula unknown.

Distribution: The species is only known from the type locality.

Remarks: The protoconch of paratype n°1 (Figs. 8, 10), less eroded than that of the holotype, is whitish and shows a honeycombed microsculpture. Two short spiral segments lie just after the protoconch whorl: each of these segments begins with a coarse axial fold and has a microsculpture made of 4 to 5 spaced fine spiral cords.

DISCUSSION

The placement of *C. fernandesi* within the Calliostomatidae is principally based on the honeycomb pattern of protoconch microsculpture, combined to a postlarval sculpture made of 2 distinctive spiral segments at the top of the teleoconch (about $1/4$ whorl). These 2 features are typical of the Calliostomatidae.

As far as the Atlantic fauna is concerned, *C. fernandesi* is comparable to *C. fascinans* Schwengel and McGinty, 1942 (АВБОТТ, 1974: 43), distributed at circalittoral levels from Florida to Mexico and showing a similar unperforate shell with the same general outline and spire angle, about the same number of spiral cords on the whorls and on the base, the same pattern of decoration (white ground with reddish brown mottling). The shell of *C. fascinans* is however larger (12-13 mm), the periphery of the last whorl is sharply carinate, the aperture is more losangic with a flat base, the beads on the spiral cords of the whorls are coarser, the intervals between these spiral cords are narrower and less deep, and the spiral cords of the base are finely beaded.

With the limited amount of material at hand, shell morphology of the species is considered to be rather variable. Compared to the holotype, the protoconch of paratype n°1 is more bulging, the shell outline is more slender, and the spiral cords of the base are more numerous (compare Figures 2, 3 and 6 with Figures 7-9).

Calliostoma fernandesi sp. nov. was collected in syntopy with the distinctive *Jujubinus fulgor* Gofas, 1991 (Fig. 1), which differs from *C. fernandesi* in many shell features, especially in its smooth reddish protoconch, the stronger basal cords and more finely beaded upper cords of its whorls, its more convex base, its more vertical columellar border, its pearly aperture and its more contrasted colour pattern of harsh white patches on a deep red ground. No other calliostomatid species is recorded from the infralittoral of southern Angola.

However, on the whole, *C. fernandesi* looks more similar to a series of species from deeper reef levels and from upper bathyal of the Southwest Pacific, placed by recent authors in the subgenus *Fautor* Iredale, 1924 (MARSHALL, 1995; VILVENS, 2005).

MARSHALL (1995) just gives "the narrower, more finely beaded spiral cords" as distinctive features of *Fautor* compared to *Calliostoma* (s. str.), but he considers that "the two groups exhibit a distinctive mosaic combination of character states that is difficult to objectively quantify or describe". Despite the limited value of this argument, and giving the precision that *Fautor* is "almost certainly polyphyletic", MARSHALL (1995) prefers to use provisionally *Fautor* as a pertinent subgenus of *Calliostoma*. Out of the New Caledonian range, MARSHALL (1995) proposes to place in the subgenus *Fautor* six other Indo-Pacific species, and with more reservation the eastern Atlantic (mostly Lusitanian) *C. lithocolletum* Dautzenberg, 1925.

C. fernandesi resembles more especially the Southwest Pacific species *C.*

houbricki Marshall, 1995 (New Caledonia and Vanuatu), *C. metivieri* Marshall, 1995 (New Caledonia) and *C. strobilos* Vilvens, 2005 (Fiji), all showing the same general shell outline with about seven whorls of teleoconch, a comparable macrosculpture and a similar pattern of decoration. The shell of *C. houbricki* is closer to the one of *C. fernandesi* because of its small size (about 10-11 mm), but it differs by its smaller protoconch, its stepped whorls bearing about one additional spiral cord, the three uppermost cords being much thinner, the granules being less protruding, almost indistinct, the base more convex with thicker granulose spiral cords, the aperture more losangic, rather like in *C. fascians*.

C. metivieri and *C. strobilos* both show a rounded peripheral part of the last whorl similar to the one found in *C. fernandesi*, but their aperture is more extended downwards and rightwards. The large-sized shell of *C. metivieri* (16-17 mm) shows about ten subequal narrower spiral cords on each whorl, separated by wider intervals and bearing smaller and more numerous granules. The base is partially perforate. The medium-sized shell of *C. strobilos* (13-15 mm) has a less produced spire and it bears 7-8 subequal strong spiral cords on each spire whorl, the coarse granules on these cords being however less protruding than in *C. fernandesi*.

C. fernandesi seems to be the sole species from shallow water attributable

to the subgenus *Fautor*, whereas all the other Atlantic and Indo-Pacific species attributable to this subgenus were collected in deep water.

Like many other species in various molluscan families, *C. fernandesi* can be interpreted as a relict species surviving in shallow waters of the Angolan relict pocket (GOFAS, PINTO AFONSO AND BRANDÃO, 1985), while other representatives of its subgenus went extinct apparently in all others places off Western Africa and survived only through patchy settlements at deep levels in other biogeographic marine provinces.

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